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CH2MHILL

February 11, 2005

Mr. Henry Chui California Environmental Protection Agency, Department of Toxic Substances Control 700 Heinz Avenue, Suite 200 Berkeley, CA 94710-2737

Subject: Risk-based Closure of Building 844 UL#01 In Investigation Area C2 on the Eastern

Early Transfer Parcel of Mare Island Where No Further Action is Required under the

Department of Toxic Substances Control Consent Agreement

Dear Mr. Chui:

CH2M HILL prepared this letter in compliance with the requirements in the Consent Agreement (Lennar Mare Island [LMI] et al. 2001) signed April 16, 2001, between LMI, the City of Vallejo, and the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) and according to the *Final Polychlorinated Biphenyl Work Plan* (CH2M HILL 2003). The purpose of this letter is to obtain DTSC concurrence that a no further action (NFA) determination is appropriate with respect to polychlorinated biphenyl (PCB) contamination as part of the overall regulatory closure process for Building 844 on the LMI property of Mare Island. An NFA determination is appropriate for the PCB site addressed in this letter based on a site-specific risk evaluation.

PCB Site Identification

From visual site surveys, including review of historical records, building closure reports, and databases of electrical equipment, the United States Department of the Navy (Navy) identified PCB sites where PCB-containing equipment was located, PCB spills were documented, or contamination was suspected because of building history or visible stains (Tetra Tech Environmental Management, Inc. 1998). Navy personnel from Supervisor of Shipbuilding, Conversion and Repair, Portsmouth, Virginia, Environmental Detachment (SSPORTS) conducted interim PCB assessments and performed cleanup actions (i.e., washing, scabbling, excavation) in accordance with Technical Work Documents, where necessary. Following the SSPORTS interim PCB assessments and any cleanup actions, Tetra Tech Environmental Management, Inc. personnel collected confirmation samples either to confirm SSPORTS findings that no cleanup was necessary or to verify the cleanup actions.

Building 844, an electrical distribution center, was constructed in 1942 and is located in Investigation Area C2. The building is located near Berth 18, south of Building 1340 in an area for industrial land use, according to the *Preliminary Land Use Plan* (LMI 2000). According to CH2M HILL's site visit in November 2004, the building is a fenced outdoor area with no roof.

Attachment A presents photographs of the site. Figure 1 shows the previous sample locations at Building 844 Unknown Location (UL)#01.

Building 844 previously contained three transformers. Former transformers T-0764, T-0765, and T-0766 were installed in January 1941 and had PCB levels of 24, 103, and 26 parts per million (ppm), respectively. These three transformers were removed in October 1985. In January 1984, T-1622 was installed; this transformer has a PCB level of 34.4 ppm. Transformers T-1729, T-1730, and T-1731 were installed in September 1987 and do not contain PCBs (Navy 1996).

PCBs were detected in 1 of 6 concrete samples collected from Building 844 UL#01 (Table 1), at a concentration of 2.1 milligrams per kilogram (mg/kg). The remaining five samples did not have PCBs detected above the laboratory reporting limit of 1 mg/kg. The average remaining total PCB concentration at Building 844 UL#01 (using all previous data and half of the reporting limit when PCBs were not detected) is 0.77 mg/kg. Because this average concentration exceeds the industrial preliminary remediation goal (PRG) (0.74 mg/kg), we are submitting this risk-based application for site closure for Building 844 UL#01.

PCB Site Closure Process

The Final Polychlorinated Biphenyl Work Plan (CH2M HILL 2003) illustrates the process for PCB site closure under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Toxic Substances Control Act. Under CERCLA, NFA is appropriate at a PCB site if there is no potential source and no PCB contamination present at the site (CH2M HILL 2003). Even if there is a potential source or PCB contamination present in machinery or building materials, NFA under CERCLA is appropriate at a site if there is no release of PCBs to soil or groundwater, nor any visible pathway for migration of PCBs to soil and/or groundwater (CH2M HILL 2003). If there is a known release to soil or groundwater, then NFA is also appropriate if the detected PCB concentrations in soil and groundwater do not exceed the applicable PRG, or results of a site-specific risk evaluation demonstrate that potential risks associated with exposure to residual PCBs are below the risk level generally used to determine if cleanup is necessary. Under the Toxic Substances Control Act, NFA is appropriate at sites where the maximum remaining PCB concentration is less than or equal to 1 mg/kg or 10 micrograms per 100 square centimeters (CH2M HILL 2003). In compliance with this process, Figure 2 provides a flowchart illustrating the PCB site closure process, with the path for Building 844 UL#01 highlighted.

Site Investigations

Table 1 provides a summary of the previous sampling at Building 844 UL#01. This table includes the sample numbers, matrix, sample date, and total PCB concentrations (the laboratory reporting limit is provided when PCBs were not detected). Attachment B includes analytical data from the previous sampling event at this site.

During the inspection of Building 844 UL#01 on September 1996, no PCB-related problems were noted. However, because this electrical distribution center once contained transformers with elevated levels of PCBs, concrete floor samples were collected during the interim PCB

assessment. On March 17, 1997, SSPORTS personnel collected six concrete samples from the concrete slab underneath transformer T-1730 in Building 844. PCBs were detected in 1 of the 6 samples, at a concentration of 2.1 mg/kg (SSPORTS 1997). The other five samples did not have PCBs detected above the laboratory reporting limit of 1 mg/kg.

Site-specific Risk Evaluation

The Final Polychlorinated Biphenyl Work Plan (CH2M HILL 2003a) describes the process for PCB site closure under CERCLA. In compliance with this process, Figure 2 provides a flowchart illustrating the PCB site closure process for Building 844 UL#01. No cleanup action is necessary at this site based on results of a site-specific risk evaluation.

The exposure point concentration (EPC) (95 percent upper confidence limit for the mean) for the total PCB concentrations at Building 844 UL#01 is 2.1 mg/kg using the maximum detected value (USEPA 2003). Based on this value, the estimated potential cumulative cancer risk for PCBs in an industrial setting at Building 844 UL#01 is 3×10^6 (EPC for total PCBs divided by the preliminary remediation goal (PRG) for cancer effects times $10^6 = [2.1/0.74] \times 10^6$), and the hazard index is less than 1 (EPC for Aroclor-1260 divided by the PRG for non-cancer effects = 2.1/11 = 0.2).

This methodology for estimating potential risks associated with exposure to PCBs in concrete most likely results in an overestimate of potential risks. The PRG used for comparison is based on soil exposure and includes the inhalation, dermal contact, and ingestion exposure routes. For each one of these routes, the exposure assumptions for intake of PCBs in soil probably overestimate intake of PCBs in concrete for the following reasons:

- 1. Inhalation Fine particles containing PCBs are not as readily available for resuspension from concrete as from soil.
- Dermal Contact PCBs in concrete are located on floors where regular dermal contact is not
 anticipated; fine concrete particles are not as available as fine soil particles for adherence to
 skin resulting in dermal absorption; and fine particles of concrete are less likely to adhere to
 skin as soil particles.
- 3. Ingestion Fine particles are not as available from concrete as soil for hand to mouth contact resulting in incidental ingestion of PCBs.

Conclusions

The concrete floor at Building 844 UL#01 was sampled in March 1997. PCBs were not detected above concentrations of 1 mg/kg in 5 of the 6 samples from the floor of Building 844. The average PCB concentration in the samples collected from Building 844 UL#01 (using all previous data and half of the reporting limit when PCBs were not detected) is 0.77 mg/kg. The maximum PCB concentration detected was 2.1 mg/kg. Because this PCB concentration exceeds the USEPA industrial PRG of 0.74 mg/kg, a site-specific risk evaluation was conducted for this site. The risk evaluation of the concrete samples concludes that the estimated potential

cumulative cancer risk for PCBs in an industrial setting at Building 844 UL#01 is 3×10^6 . Consequently, we are requesting that USEPA issue an NFA determination for Building 844 UL#01 under CERCLA.

These site-specific risk evaluation results demonstrate that potential cancer risks associated with exposure to residual PCBs at Building 844 UL#01 are at the lower end of the risk-management range generally used to determine if additional cleanup is necessary (1 x 10⁴ to 1 x 10⁶). In addition, the non-cancer risk hazard index is less than 1 (0.2). Based on the risk evaluation results and the conservative nature of the assumptions used in the risk calculations for this paved area, no cleanup actions for PCBs in building materials are necessary at Building 844 UL#01. There are no indoor air concerns from volatilization of PCBs from building materials at this site because Building 844 does not have a roof and the building walls are fence materials. The conditions for DTSC closure of PCB sites have been met for this site (Figure 2). Under CERCLA, an NFA determination for Building 844 UL#01 would be protective of human health and the environment.

Please respond to this letter with confirmation that, in accordance with the approved *Final Polychlorinated Biphenyl Work Plan* (CH2M HILL 2003), under CERCLA, NFA is appropriate for the PCB site Building 844 UL#01. Please submit your approval of NFA at this site to me at the above address or via e-mail at <u>jmorris1@ch2m.com</u>. If you have any questions regarding the site addressed in this letter, please contact Tom Corontzos at (530) 243-5886 extension 3227.

References

CH2M HILL. 2003. Final Polychlorinated Biphenyl Work Plan. March 7.

Lennar Mare Island (LMI). 2000. Preliminary Land Use Plan. May 23.

- Lennar Mare Island (LMI), the City of Vallejo, and the State of California, Environmental Protection Agency Department of Toxic Substances Control (DTSC). 2001. Consent Agreement between Lennar Mare Island, the City of Vallejo, and the State of California, California Environmental Protection Agency Department of Toxic Substances Control. April 16.
- Supervisor of Shipbuilding, Conversion, and Repair, Portsmouth, Virginia, Environmental Detachment (SSPORTS). 1997. Interim Polychlorinated Biphenyl (PCB) Assessment for Zone 5 PWC Properties. August 22.
- Tetra Tech EM, Inc. (TtEMI). 1998. Final Basewide Polychlorinated Biphenyl Confirmation Sampling Summary Report. February 13.
- United States Department of the Navy (Navy). 1996. *PCB Transformers*. Table from the Caretaker Site Office. November 5.

United States Environmental Protection Agency (USEPA). 2003. ProUCL User's Guide. February.

Sincerely,

CH2M HILL

Jeffery C. Morris, PE

Enclosures: Table 1, Figures 1 and 2, Attachments A and B

Copy to (with enclosures):

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Ms. Lea Loizos Arc Ecology 833 Market Street San Francisco, CA 94103

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Mr. Kenneth Browne 109 El Camino Real Vallejo, CA 94590

Mr. James O'Loughlin 1449 Sheridan Drive Napa, CA 94558

Ms. Michele Benson

U.S. Environmental Protection Agency

75 Hawthorne Street, ORC-3-1 San Francisco, CA 94105

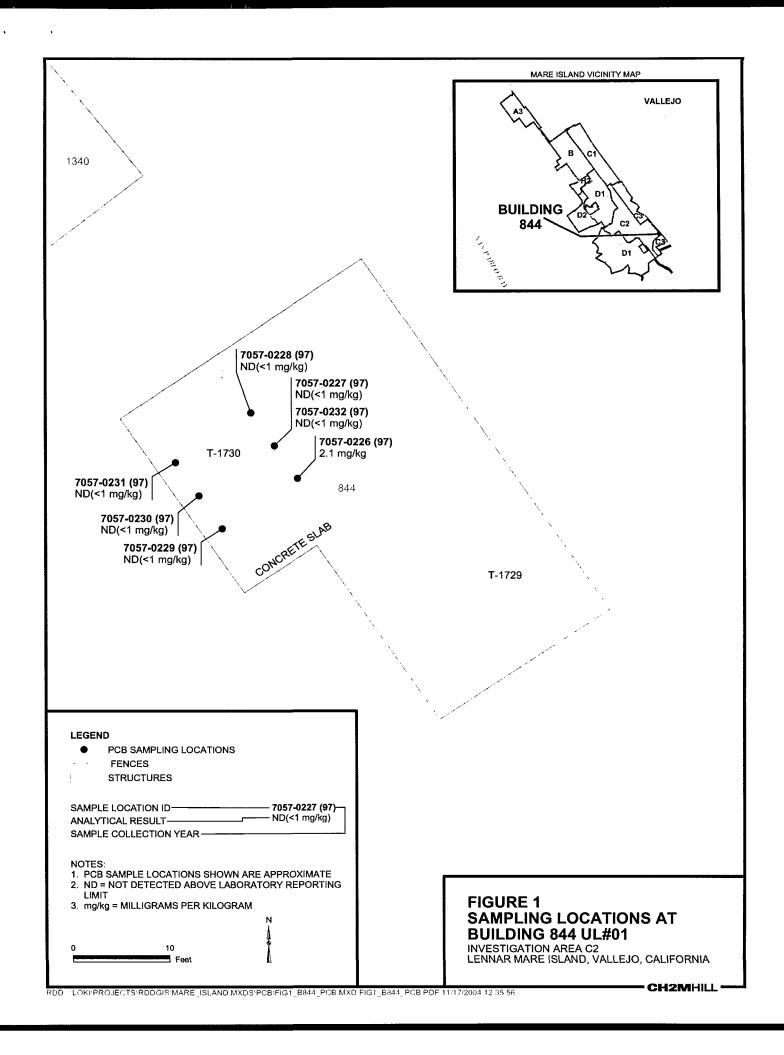
TABLE 1 Sample Results for Building 844 UL#01 Investigation Area C2, Lennar Mare Island, Vallejo, California

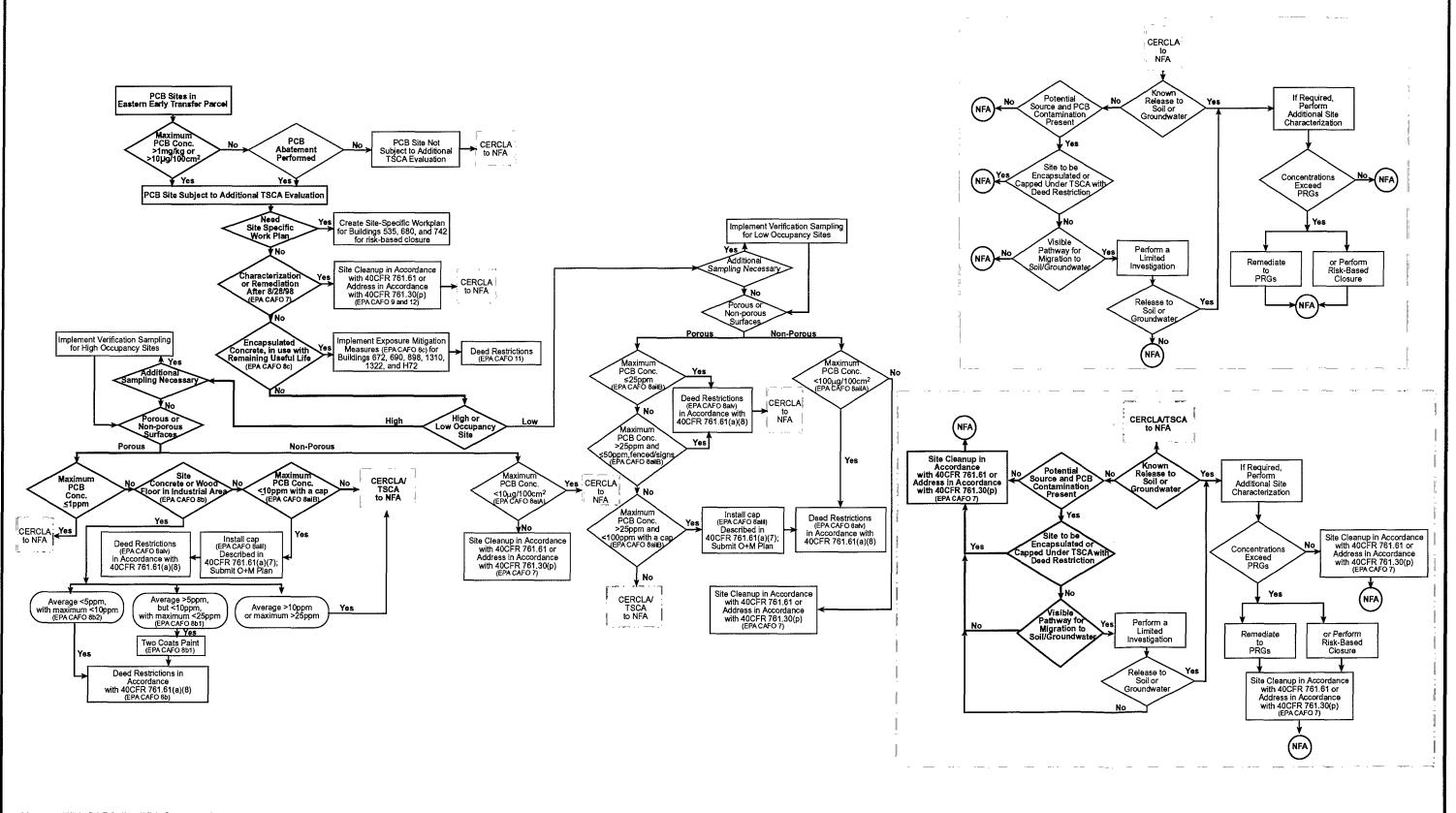
PCB Site Name	Site Description	Sample Number	Sample Matrix	Sample Date	Total PCB Concentration	Comments
Building 844 UL#01	Electrical Distribution Center	7057-0226	Concrete	03/17/97	2.1 mg/kg	
		7057-0227	Concrete	03/17/97	ND (< 1 mg/kg)	
		7057-0228	Concrete	03/17/97	ND (< 1 mg/kg)	
		7057-0229	Concrete	03/17/97	ND (< 1 mg/kg)	
		7057-0230	Concrete	03/17/97	ND (< 1 mg/kg)	
		7057-0231	Concrete	03/17/97	ND (< 1 mg/kg)	
		7057-0232	Concrete	03/17/97	ND (< 1 mg/kg)	Duplicate sample for 7057-0227

mg/kg = milligrams per kilogram

ND = not detected above the laboratory reporting limit

UL = Unknown Location





Notes: EPA CAFO # = EPA Consent Agreement and Final Order paragraph number

NFA = No further action

O+M = Operations and Maintenance

FIGURE 2
PATH FOR PCB SITE CLOSURE
AT BUILDING 844 UL#01
LENNAR MARE ISLAND, VALLEJO, CALIFORNIA

Attachment A Building 844 UL#01 – Photographs



Photo 1. Building 844 UL#01, looking south

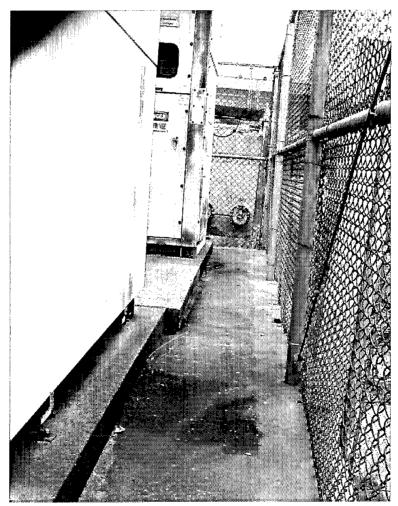


Photo 2. The northwestern portion of Building 844 UL#01, looking southwest

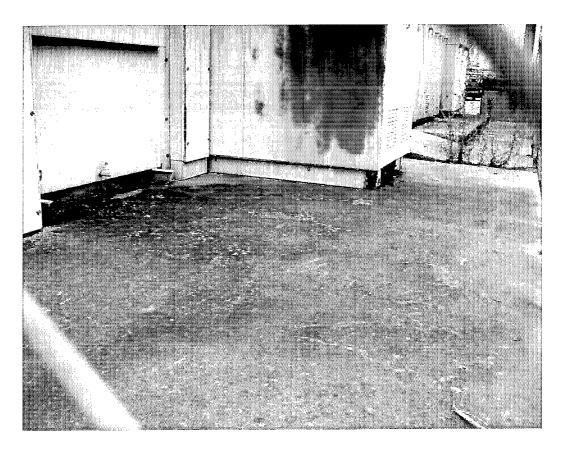


Photo 3. Transformer T-1729

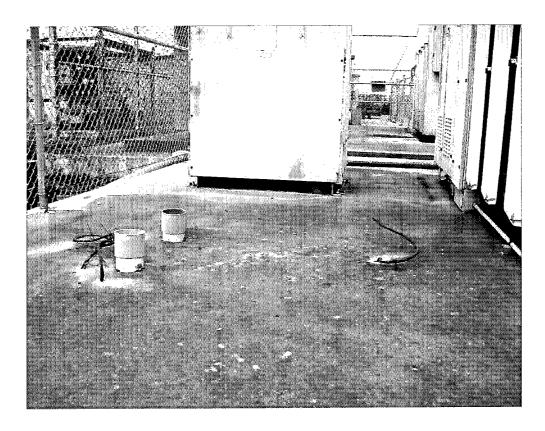


Photo 4. Looking northwest toward transformer T-1730

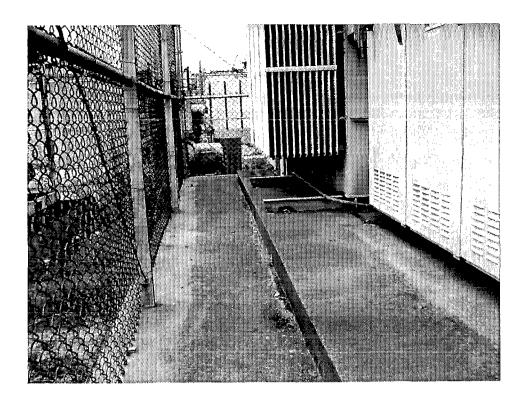


Photo 5. Looking northwest, toward the southern side of transformer T-1730

Attachment B Building 844 UL#01 – Analytical Data

alscience nvironmental aboratories, Inc.

ANALYTICAL REPORT EPA 8081 PCBs Only



Client Name:

Mare Island Naval Shipyard

Project ID:

Contract No. N00244-96-D-2009

Work Order Number:

97-03-285

QC Batch ID:

970321sn4

Solid

Date Collected: Date Received: 03/17/97

Matrix:

EPA 3550A

Date Extracted:

03/21/97 03/21/97

Extraction: Method:

EPA 3000A EPA 8081

Date Analyzed:

03/26/97

Client Sample Number:

7057-0226 (05-l/sample pt. location #70)

Lab Sample Number:

97-03-285-1

Parameter	Result	RL	Qualifiers	<u>Units</u>
Aroclor-1016 Aroclor-1221	ND ND	1000 1000	·	ug/kg
Aroctor-1232	ND	1000		ug/kg ug/kg
Arodor-1242 Arodor-1248	ND ND	1000 1000		ug/kg ug/kg
Arodor-1254 Arodor-1260	ND 2100	1000 1000	;	ug/kg
Arodor-1262	ND	1000	-	ug/kg ug/kg

Surrogates:	٠	REC (%)	Control Limits	Qualifiers
Decachlorobiphenyl		125	50-130	,
2,4,5,6-Tetrachloro-m-Xylene		99	50-130	•

(QC FOLLOWS SAMPLE NO. 7057-6238 (BUG. 1340))

Zone 5 PWC Release Enclosure (3) Page 145 of 171

alscience invironmental aboratories, inc.

ANALYTICAL REPORT EPA 8081 PCBs Only



Client Name:

Mare Island Naval Shipyard

Contract No. N00244-96-D-2009

Project ID: Work Order Number:

97-03-265 970321sn4

Date Collected: Date Received: Date Extracted: 03/17/97 03/21/97 03/21/97

QC Batch ID: Matrix: Extraction: Method:

Solid EPA 3550A EPA 8081

Date Extracted:

03/28/97

Cilent Sample Number: Lab Sample Number: 7057-0227 (05-l/sample pt. location #71)

97-03-285-2

Units Qualifiers RL Result Parameter ug/kg 1000 ND ug/kg · Aroclor-1016 1000 ND ug/kg Arodor-1221 1000 ND ug/kg Aroclor-1232 1000 ND ug/kg Aroclor-1242 1000 ND ug/kg Aroclor-1248 1000 ND ug/kg Arodor-1254 1000 ND ug/kg Aroclor-1260 1000 ND Aroclor-1262

Surrogates:	REC (%)	Control Limits	Qualifiers
Decachlorobiphenyl 2.4.5.6-Tetrachloro-m-Xylene	120 · 117	50-130 50-130	•





Client Name:

Mare Island Naval Shipyard

Project ID:

Contract No. N00244-96-D-2009

Work Order Number:

97-03-285

QC Batch ID:

970321sn4

Date Collected:

03/17/97

Matrix:

Solid

Date Received:

03/21/97

Extraction:

EPA 3550A

Date Extracted:

03/21/97

Method:

EPA 8081

Date Analyzed:

03/26/97

Client Sample Number:

7057-0228 (05-l/sample pt. location #72)

Lab Sample Number:

<u>Parameter</u>	Result	<u>RL</u>	Qualifiers	<u>Units</u>
Aroclor-1016	ND.	1000		ug/kg
Aroclor-1221	ND	1000		.ug/kg
Aroclor-1232	ND	1000		ug/kg
Aroclor-1242	ND	1000	*	ug/kg
Aroclor-1248	ND	1000	•	ug/kg
Araclor-1254	ND	1000	į	ug/kg
Aroclor-1260	ND	1000		ug/kg
Aroclor-1262	ND	1000		ug/kg
Surrogales:	<u>REC (%)</u>	Control Limits	Qualifiers	
Decachlorobiphenyl	121	50-130	•	
2.4.5.6-Tetrachloro-m-Xylene	133	50-130	X.2	

alscience nvironmental , aboratories, Inc.

ANALYTICAL REPORT EPA 8081 PCBs Only



Client Name:

Mare Island Naval Shipyard

Project ID:

Contract No. N00244-96-D-2009

Work Order Number:

97-03-285

QC Batch ID:

970321sn4

Date Collected:

03/17/97

Matrix:

Solid

Date Received:

03/21/97

Extraction:

EPA 3550A

Date Extracted:

03/21/97

Method:

EPA 8081 -

Date Analyzed:

03/26/97

Client Sample Number:

7057-0229 (05-l/sample pt. location #73)

Lab Sample Number:

Parameter	Result	<u>RL</u>	<u>Qualifiers</u>	<u>Units</u>
Aroclor 1016	ND	1000		ug/kg
Aroclor-1221	ND ND	1000 -		ug/kg
Arodor-1232	ND	1000	• ;	ug/kg
Aroclor 1242	ND	1000		ug/kg
Aroclor-1248	ND	1000.		ug/kg
Arocior-1254	ND	1000		ug/kg
Aroclor-1260	` ND	1000		ug/kg
Aroclor-1262	ND	1000		ug/kg
Surrogates:	REC (%)	Control Limits	Qualifiers	
Decachlorobiphenyl	123	50-130		
2,4,5,6-Tetrachloro-m-Xylene	134	50-130	X,2	





Client Name:

Mare Island Naval Shipyard

Project ID:

Contract No. N00244-96-D-2009

Work Order Number:

97-03-285

QC Batch ID:

970321sn4

Solid

Date Collected: Date Received:

.

03/17/97 03/21/97

Matrix: Extraction:

EPA 3550A

Date Extracted:

03/21/97

Method:

EPA 8081

Date Analyzed:

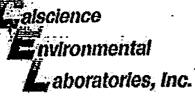
03/26/97

Cilent Sample Number:

7057-0230 (05-l/sample pt. location #74)

Lab Sample Number:

Parameter	Result	RL	Qualifiers	<u>Units</u>
Aroclor-1016	ND	1000	·* .	ug/kg
Aroclor-1221	ND	1000		ug/kg
Arodor-1232	ND	1000		ug/kg
Aroclor-1242	ND	1000	-:	ug/kg
Arodor-1248	ND	1000	* · · ·	ug/kg
Arodor-1254	ND	1000 -	•,	ug/kg
Arodor-1260	ND	1000		ug/kg
Aroclor-1262	ND	1000		ug/kg
Surrogates:	<u>REC (%)</u>	Control Limits	Qualifiers	
Decachiorobiphenyl	124	50-130		
2.4.5.8-Tetrachloro-m-Xvlene	132	50-130	X.2	





Client Name:

Mare Island Naval Shipyard

Project ID:

Contract No. N00244-96-D-2009

Work Order Number:

97-03-285

QC Batch ID:

970321sn4

Date Collected:

03/17/97

Matrix:

Solid

Date Received:

03/21/97

Extraction: Method:

EPA 3550A EPA 8081

Date Extracted: Date Analyzed:

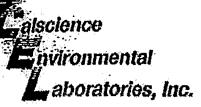
03/21/97 03/26/97

Glient Sample Number:

7057-0231 (05-l/sample pt. location #75)

Lab Sample Number:

Parameter	Result	RL	Qualifiers	<u>Units</u>
Aroclor-1016	ND	1000		ug/kg
Aroclor-1221	ND	1000		ug/kg
The market will be the control of th	ND	1000		ug/kg
Aroclor 1242	ND	1000	•	ug/kg
Aroclor-1248	ND	1000	•	ug/kg
Aroclor-1254	ND	1000	•	ug/kg
Aroclor-1260	ND	1000	•	ug/kg
Aroclor-1262	ND	1000		ug/kg
Surrogates:	REC (%)	Control Limits	Qualifiers	
Decachlorobiphenyl	129	50-130	-	
2,4,5,6-Tetrachloro-m-Xylene	187	FO 400	· X ₁ 2	





Client Name:

Mare Island Naval Shipyard

Project ID:

Contract No. N00244-96-D-2009

Work Order Number:

97-03-285

QC Batch ID:

970321sn4

Date Collected:

03/17/97

Matrix:

Solid

Date Received:

03/21/97

Extraction:

Date Extracted:

03/21/97

Method:

EPA 3550A EPA 8081

Date Analyzed:

03/26/97

Client Sample Number:

7057-0232 (05-l/sample pt. location #71)

Lab Sample Number:

<u>Parameter</u>	Result	<u>RL</u>	Qualifiers	<u>Units</u>
TAroclor-1016	ND	1000		ug/kg
-Arocloi-1221	ND	1000		ug/kg
Aroclor-1232	ND	1000		ug/kg
Aroclor=1242	ND	1000		ug/kg
Aroclor=1248	ND	1000	* *	ug/kg
Aroclor-1264	ND	1000	•	ug/kg
Aroclor-1260	ND	1000		ug/kg
Aroclor-1262	ND	1000		ug/kg
Surrogates:	<u>REC (%)</u>	Control Limits	Qualifiers	•
Decachlorobiphenyl	124	50-130	•	
2,4,5,6-Tetrachloro-m-Xylene	108	50-130	•	